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BIRDS OF THE SISKIYOU MOUNTAINS, CALIFORNIA: A PROBLEM IN DISTRIBUTION.

BY MALCOLM P. ANDERSON AND JOSEPH GRINNELL.

The birds of the following list were taken or observed by Malcolm P. Anderson in the extreme northwestern part of California, between September 6, 1901, and March 10, 1902. His field-notes form the basis of the present paper, while Joseph Grinnell is responsible for the critical remarks on specimens and distribution.

The region explored occupies the northwestern corner of Siskiyou county, close to the Oregon boundary. Most of the observations pertain to the region of Horse and Seiad creeks, which head in the Siskiyou range. Horse creek flows into the Klamath river from the north about four miles below the old mining camp called Oak Bar, and about nine miles above the mouth of Scott river. Seiad creek joins the Klamath near Seiad Post Office, which is eleven miles below Scott river, and therefore twenty miles from Horse creek. Although these two streams empty so far apart they head near together, there being but one ridge between the main branch of each.

Oak Bar is at an approximate altitude of 2,800 feet, while the crest of the Siskiyou Mountains, some seventeen miles north of the Klamath river, is 7,000 feet in elevation. The highest points of the range in the neighborhood of Horse creek approach 8,000 feet. West of Seiad creek the country changes abruptly, becoming far rougher, with the peaks in some instances rising higher. Near the mouths of both Horse and Seiad creeks the canyons expand into valleys, which are occupied by a few farmer-miners. The valley of Seiad creek is much the larger and is known as Seiad Valley. After the first of November camp was made about ten miles up Horse creek, at a little farm called Grater's ranch.

The region under consideration is covered with an open forest extending from the Klamath up to within a few hundred feet of the summit of the range. Here the trees become scattering and in places give way to large stretches of chaparral, with here and there meadows in which grass grows waist high unless disturbed by cattle.

The Life Zones represented in the region seem to be: Transition, which extends from the Klamath up to about the 6,000-foot contour line, and Canadian, which caps the range, with perhaps dilute Hudsonian in places. The following trees identified will give a better idea of the conditions among which the birds were found:

TREES OF THE TRANSITION ZONE.

Pseudotsuga mucronata. Douglas Spruce.

This is the most conspicuous tree of the region. On Horse creek it is found from the Klamath up to an altitude of 5,500 to 6,000 feet.

Libocedrus decurrens. Incense Cedar.

This was also a very common tree from the Klamath up to about 5,000 feet.

Pinus lambertiana. Sugar Pine.

This is the largest tree of the region, and is common along the summits of White Cloud and Johnny O'Neil ridges from the Klamath up. It is most abundant and of greatest size in the basin of Salt creek about a mile from Grater's. Not observed above 4,500 feet.

Pinus ponderosa. Yellow Pine.

Seen from the Klamath up to about 4,000 feet; frequently of large size.

Pinus attenuata. Scrub Pine.

This tree grows commonly in the upper part of Seiad Valley, and was noticed along Seiad creek up to 4,000 feet.

Quercus californicus. Black Oak.

Though there are several species of oaks in the region, the only one that is very conspicuous is the California black oak. It is found from the Klamath to an elevation of about 4,000 feet. In several places it forms groves of considerable size to the exclusion of coniferous trees.

Arbutus menziesi. Madrone.

Seen frequently among the oaks up to their limit.

Alnus sp.?

A species of alder grows along all the streams.

Acer macrophyllum. Big Leaf Maple.

Observed along streams, but limits not noted.

TREES OF THE CANADIAN ZONE.

Abies magnifica shastensis. Shasta Fir.

This tree mixes with the following in the upper edge of Transition, and extends throughout the Canadian zone.

Abies concolor lowiana.

A fir probably referable to this form is found in the lower portion of Canadian and higher Transition, where it occurs in company with the Douglas spruce. In the canyon of Horse creek it was seen down to an altitude of 3,100 feet.

Pinus monticola. Mountain Pine.

This tree is frequent in the Canadian zone, to which it seems restricted.

HUDSONIAN ZONE.

Tsuga mertensiana. Black Alpine Hemlock.

Hemlocks grow in abundance near the head of the east fork of Horse creek and elsewhere along the range in cool places. During a tramp along the crest this tree was seen repeatedly.

NOTES ON THE BIRDS OF THE REGION.

Ardea herodias herodias. Great Blue Heron.

On January 25 a great blue heron was seen on Seiad creek, about four miles above the mouth. Again, on March 2, two herons were observed on the Klamath river, between Oak Bar and Walker Post Office.

Oreortyx pictus plumiferus. Mountain Partridge.

On September 12 a small boy brought in two quail which had been shot near the house on Grater's Ranch. Subsequently the species was detected only once: a flock of six or eight were seen in Seaid Valley on December 20. The two September birds were preserved, and in spite of extremely abraded plumage, are plainly referable to *plumiferus*, and not *pictus*, as one might expect. One of the specimens is adult and shows a few new feathers appearing on the scapulars, breast and sides, but there is no evidence of approach toward the brown-necked humid coast form. This is an interesting example of the westward extension of a Sierra Nevadan form.

Bonasa umbellus sabinei. Oregon Ruffed Grouse.

The people of the Siskiyou state that this bird is invariably seen on the ground or on fallen logs. The observations of the past winter go to confirm this, for all the grouse seen were upon the ground or flying near it, and in all cases were in groves of small Douglas spruce, such as grow near or in the canyon bottoms. There is another grouse known to the inhabitants of this region. This bird is said to be found mainly in trees and is doubtless the sooty grouse (*Dendragapus obscurus fuliginosus*). In the latter part of February and early in March, the drumming of what was thought to be this latter species was heard, but not even a glimpse was obtained of the performer. Four specimens of the

Oregon ruffed grouse were preserved, and the species may be considered fairly common through the winter in this region. This bird has been found previously in California only in the redwood forests in the vicinity of Humboldt Bay, so that the present record extends its known range considerably to the eastward. Douglas, in the original description of his "Tetrao Sabini," gives its range as "from Cape Mendocino" north, etc. But recent records, up to the present, indicate ordinarily a dense forest habitat.

Buteo borealis calurus. Western Red-tailed Hawk.

An immature male red-tail was shot on October 11 on the very summit of the Siskiyou, where the Oregon trail crosses.

Falco sparverius phalæna. Western Sparrow Hawk.

One was observed on March 2 between Oak Bar and Walker on the Klamath.

Ceryle alcyon. Belted Kingfisher.

A single individual was observed flying up Horse creek on January 16.

Dryobates villosus harrisi. Harris Woodpecker.

This bird is very common in the groves of black oak which are located here and there on the lower parts of the Siskiyou range. It is also found in the coniferous forests, though in smaller numbers. From October 24 to February 15 fifteen specimens were taken. These are variously intermediate in coloration between *hyloscopus* and *harrisi*, but average nearest the latter. Five of the birds have all the white areas strongly suffused with smoke-gray or brown, nearly but not quite as deeply as in specimens from western Oregon and Washington. Four have all the areas practically pure white, while the other six are fairly intermediate between these two types. The whole fifteen present an uninterrupted series, from the whitest to the dingiest. The usual size of all the specimens, however, is that of *harrisi;* that is, decidedly larger than the white-breasted *hyloscopus*, which occupies nearly the whole of California in favorable localities outside of the extreme northern humid coast belt.

Dryobates pubescens gairdneri. Gairdner Woodpecker.

The Gairdner woodpecker is usually to be found in company with the flocks of mountain chickadees which frequent the black oak groves all winter. The oaks are their favorite working places, but they are also to be seen among the pines and spruces. The six specimens brought home are all quite near *gairdneri*. The smokiness of the lower surface is not so intense as in skins from western Oregon, but the size, especially of the feet, is decidedly that of the northwest coast form.

Gairdneri occurs in California only in the extreme northwestern corner of the State, the greater portion west of the Sierras being occupied by *D. p. turati.* (See Fisher, *Condor*, IV, May, 1902, 68.)

Xenopicus albolarvatus. White-headed Woodpecker.

Only three birds of this species were seen in the Siskiyou region. All were shot from sugar pines in the neighborhood of Salt creek. They were obtained on October 10, January 10 and February 19, respectively. These specimens are exactly like the small-billed Sierra Nevadan birds. The known range of the species is thus materially extended, and here seems to be its westernmost station.

Sphyrapicus varius ruber. Red-breasted Sapsucker.

This woodpecker was not infrequently seen along Horse and Seiad creeks, mostly in the spruce forest at about 3,200 feet elevation. While not the extreme manifestation of *ruber*, the four specimens secured, by their large size and dark coloration, easily belong under this head. The white markings of wings and tail are much more restricted than in the Sierra Nevadan *daggetti*.

Sphyrapicus thyroideus. Williamson Sapsucker.

A single individual was found on a ridge above camp on December 19. It was at work in a tall Douglas spruce, and continued tapping lightly until closely approached. This proved to be a female, and is darker colored than Sierran specimens compared with it. The head is browner, while the deeper yellow belly and extreme length of wing point toward a geographical variation perhaps parallel to *S. v. ruber*.

Ceophlœus pileatus abieticola. Northern Pileated Woodpecker.

The pileated woodpecker is one of the most conspicuous birds of the region. Its loud screech-like call can be heard for many hundred yards across the canyons. Though often seen it is very wary and difficult of approach. Its favorite resorts seem to be the black oaks, but occasional birds are seen to alight in coniferous trees. One specimen had the stomach distended with large black ants, which it was gathering from an oak when shot. As shown by the following measurements (in millimeters), the four specimens procured belong to the large northern race. There appear to be no significant differences between these and skins from the north Atlantic slope.

Collector's No.	Date.	Wing.	Tail.	Tarsus.	Bill from Nostril.
♂ 56	Oct. 9	238	187	35	41
♀ 63	" 13	226	179	36	40
♀ 141	Dec. 19	225	175	37	36
♀ 156	" 27	226	180	35	38

Melanerpes torquatus. Lewis Woodpecker.

The first bird noticed on crossing the Klamath and entering Horse creek canyon was the Lewis woodpecker. The species was then, September 6, abundant in oaks bordering the meadows near the mouth of the creek. On September 13, two specimens were shot from a spruce near Grater's farmhouse. There were a number of others about at the time, but at the report of the gun they made off down the canyon, and nothing was afterward seen of the species anywhere in the region. It probably occurs only as a migrant.

Colaptes cafer saturatior. Northwestern Flicker.

Flickers were seen in the yellow pine forests on the ridge west of camp all through the fall and early part of winter, but they were so excessively shy that none were secured until January 20. They were always abundant near the mouth of Seiad creek, in some open meadows lined with oaks, and alders overgrown with wild grapevines. As compared with specimens from the vicinity of Monterey, the type locality of *collaris*, the three skins from the Siskiyou country show somewhat greater dimensions and also darker colors. This is especially noticeable on the back, which is a decidedly richer brown, the ground color being deep Prout brown.

Sayornis saya. Say Phœbe.

On September 16 a Say phœbe was shot from its perch on the barn at Grater's place. This was the only bird noted, and so is probably represented in the region only as a migrant.

Cyanocitta stelleri carbonacea. Coast Jay.

This was the only jay detected in the Siskiyou Mountains, and was by no means as conspicuous as jays often make themselves. Only occasionally was one heard scolding in some cluster of spruces, or discovered hopping quietly from limb to limb in a black oak. Eight skins were obtained during the winter, and all proved to be quite typical of the humid coast race *carbonacea* (see Fisher, *Condor*, IV, March, 1902, 41). But a female specimen taken at Walker Post Office, Siskiyou county, March 11, 1902, is very different, approximating *C. s. frontalis*, though not as pale as the average of southern California birds. Walker is only about twenty miles due east of Seiad Valley, and about forty-five miles northwest of Mt. Shasta. If this specimen represents the resident race of its locality, it furnishes a very interesting example of the possible close invasion of two races toward each other from their original separate centres of differentiation (until the area of intergradation may ultimately disappear).

Corvus americanus hesperis. California Crow.

On October 1 a large flock of crows were noted on a meadow near the mouth of Horse creek. Later in October a single individual was seen in a meadow at Grater's. Numbers were observed along the Klamath near Oak Bar toward the middle of March (6th and 11th).

Nucifraga columbiana. Clarke Nutcracker.

Two individuals were observed on December 29 on the ridge between Horse and Salt creeks. Mr. Doney, a miner of more than ordinary intelligence and veracity, stated that this bird is common on the highest parts of the Siskiyou all through the summer. This is another indication of the presence of a Hudsonian zone on these mountains.

Carpodacus purpureus californicus. California Purple Finch.

A male specimen was secured on February 1 on the ridge between Horse and Salt creeks. The bird was at the top of a large oak singing loudly. We took the singing as a sign of spring coming, but we had severer weather after that than before.

Astragalinus psaltria psaltria. Arkansas Goldfinch.

Soon after reaching Grater's ranch, September 7, these birds were common in a pasture near the house. But within a few days, and before specimens were secured, they took their departure.

Junco hyemalis hyemalis. Slate-colored Junco.

A single male specimen was shot on January 25 from a black oak in the dooryard at Grater's. There were other juncos about at the time, but all seemed to be of the Oregon form. This skin measures, wing 78 mm., tail 71. The tips of the dorsal feathers are slightly brownish, but the bird agrees explicitly with selected north-Alaskan and Atlantic coast specimens. This makes about the twenty-second instance of the occurrence of this form in California.

Junco hyemalis oreganus. Oregon Junco. }
Junco hyemalis thurberi. Sierra Junco. }

Juncos seemed to constitute the most common species throughout the Transition of the Siskiyou region. Not a day passed without numbers being seen. On and after December 4, when the first snow fell, they became very common about camp, where they worked continually in the old garden. Out of sixteen skins brought home, six are at a glance recognizable as *oreganus;* they are just like Seattle and Sitka specimens. Four others are just as typically *thurberi* when compared with Mt. Wilson skins, while the remaining six are partly immature and are less precisely referable. It might be surmised that the Oregon juncos are winter visitants, while the *thurberi* type is the resident form, but this is pure conjecture.

Melospiza cinerea merrilli. Merrill Song Sparrow.

Two specimens of this song sparrow were taken on October 30 and December 14 respectively, from a tangle of blackberry briers near camp. These are much paler than *morphna* and *phœa*, with decidedly blackish streaks both on back and breast, thus approaching *montana* closely. It seems probable that it is this form that breeds in the region.

Collector's No.	Wing.	Tail.
♀ 130	66	70
♀ 70	65	71

Melospiza cinerea morphna. Rusty Song Sparrow.

A bird of this race was taken on November 6 from the tangle of briers in which the Merrill song sparrows were found. Another was taken later from a band of sparrows in Seiad Valley. The first of these (No. 78) inclines in paleness of hind neck and back toward *merrilli.* The other is nearer *phœa* in having a sooty streaking. But the large size in both cases places them rather in the *morphna* category.

Collector's No.	Wing.	Tail.
♂ 110	71	76
♂ 78	69	77

Passerella iliaca unalaschcensis. Shumagin Fox Sparrow.

On October 9 two fox sparrows were taken from the same thicket mentioned in connection with the foregoing. These seem to be nearest *unalaschcensis*, though inclining toward *meruloides* in brownness of coloration. They are too small for *insularis.* Making due allowance for wear, they are counterparts of summer specimens at hand from Prince William Sound, Alaska, which is about half-way between the metropolis of *meruloides* (Yakutat Bay) and that of *unalaschcensis* (Aliaska Peninsula).

Piranga ludoviciana. Western Tanager.

A single specimen was shot from a sugar pine on White-Cloud ridge on September 12, evidently in migration.

Vireo solitarius cassini. Cassin Vireo.

The only specimen observed was secured September 12 from some alders bordering a small stream on White-Cloud ridge, doubtless in migration.

Vireo huttoni huttoni. Hutton Vireo.

Hutton vireos were found frequenting that part of the Transition zone in which oaks are most numerous, but were also often seen feeding in spruces. They remained throughout the winter in uniform numbers.

There seems to be absolutely no difference between the six Siskiyou skins and a series from the Santa Cruz Mountains and vicinity of Monterey, the latter being the type locality of *huttoni*. Monterey is in the southern extremity of the humid coast Transition, and there has always seemed a doubt as to the existence of a race *obscurus* in the northern part of the same belt. S. N. Rhoads, in the *Auk*, Vol. X, July, 1893, p. 238, clearly pointed out the untenability of *obscurus*, but no one seemed to pay any attention to his remarks. As to the existence of a really distinct form on Vancouver Island (*V. h. insularis* Rhoads), we have as yet no specimens to indicate it. Looking at Anthony's description of *obscurus*, we find that he used southern California birds in comparison with his Oregon ones. Some skins now at hand from Pasadena, in moderately worn spring plumage, are not so green dorsally and laterally as birds of the same season from the Santa Cruz district. This is evidently due to the greater rate of fading and abrasion in the arid southern climate, for the majority of specimens in fresh fall plumage are indistinguishable, and equivalent extremes are to be picked out of both series. Sixty specimens have been examined in this connection.

Dendroica auduboni. Audubon Warbler.

A male was shot from a small flock on the west side of White-Cloud ridge on September 12. After that none were seen.

Cinclus mexicanus. American Dipper.

Fairly common from the Klamath up Horse and Seiad creeks to an altitude of 5,000 feet. Five skins were preserved.

Troglodytes hiemalis pacificus. Western Winter Wren.

This proved to be a common bird of the Siskiyou region, where it was almost always to be found in the blackberry tangles along the smaller streams. Seventeen skins secured serve only to emphasize the geographical uniformity of this race in its long north-and-south range.

Certhia americana zelotes. Sierra Creeper.

Creepers are comparatively numerous in the region of Horse creek. They were often seen busily searching about the bases of the Douglas spruce or hurriedly climbing spirally up the trunk of some pine or oak. The eleven specimens procured do not seem to differ in the least from Sierran birds. Nor do they look much different from Sitkan skins. However, we have no certified examples of *occidentalis,* which is a supposedly distinct form said to occupy the humid northwest coast belt.

Sitta carolinensis aculeata. Slender-billed Nuthatch.

This bird was seen everywhere from the Klamath river to the upper edge of Transition. It seems to lead the mixed flocks of *Parus, Regulus,* etc., with which it is nearly always seen. Seventeen specimens were obtained.

Sitta canadensis. Red-breasted Nuthatch.

The Canada nuthatch was far less conspicuous than the preceding species, though it was probably no less common. It also accompanied the mixed flocks of chickadees and kinglets to some extent, but seemed to prefer the coniferous trees to the oaks which the slender-billed nuthatch so largely frequents. Previous to December 26 no individuals were seen. The specimen shot on that date was rather high up in Transition, and was, it seems probable, just descending from the Canadian zone. For the species was shortly afterward common.

Parus gambeli. Mountain Chickadee.

This chickadee was constantly present among both the oaks and coniferous trees throughout Transiton and up into lower Canadian. The fourteen specimens brought home have on an average smaller bills than a series from the mountains of southern California (just as with *Xenopicus*). This is the westernmost record for this species.

Parus rufescens rufescens. Chestnut-sided Chickadee.

This bird was almost always found in company with the mountain chickadee, forming mixed roving bands. The series of twenty-one specimens is uniform and quite like birds from Sitka and Oregon. It would be highly important to know whether this species and the last occur together in summer also, and breed in the same locality.

Psaltriparus minimus. California Bush-tit.

This was another very common bird in the black oak forests, but occurred in the coniferous woods as well. It was not, however, observed above the limit of *Pinus ponderosa.* The ten specimens taken present no differences from corresponding plumages of birds from central and southern California. Nor are there any characters to discriminate the few specimens we have from Oregon and Washington from those from California. Judging from the specimens at hand, there is little or no evidence of a race *californicus.* There is considerable variation in shade of back and pileum due to wear and fading, but the fresh fall birds all look alike.

Regulus satrapa olivaceus. Western Golden-crowned Kinglet.

This bird, when observed at all, was always in the flocks of chickadees and nuthatches. Seven specimens, all males, were secured during the winter.

Hylocichla guttata nana. Dwarf Hermit Thrush.

On December 20 the only small thrush seen was shot from an alder in Seiad Valley. This specimen, on account of its small size and brown coloration, is easily referable to the northern humid coast form *nana.*

Merula migratoria propinqua. Western Robin.

Seen occasionally throughout the winter, almost always with the varied thrushes. It ranges from the Klamath river up to the limit of the black oak timber at least.

Ixoreus nævius nævius. Varied Thrush.

The varied thrush, although seen throughout the winter, was not common until January, when large flocks appeared on the meadows in Seiad Valley. (This valley is almost free from snow). When the snow left the meadow at Grater's during February, numbers of these thrushes appeared there. At the same time they became common in the oak forests. Sixteen specimens were preserved. These average in characters close to the Sitkan form.

Sialia mexicana occidentalis. Western Bluebird.

A male bluebird was shot from a small flock on White-Cloud ridge, September 12. After this none were seen until February 9, when a bird appeared near camp. They soon after became common both in the vicinity of Grater's and in Seiad Valley.

Summary.

The foregoing list is a remarkable one as showing the association of a number of birds not usually found together. The Siskiyou Mountains are evidently on the narrow line of mergence between the humid coast fauna and the arid Sierran fauna. Representative species of the two areas are here found in about equal numbers, in winter at least, as shown by the following comparative table:

Humid Coast Fauna.	Arid Sierran Fauna.
Bonasa umbellus sabinei,	*Dendragapus obscurus fuliginosus,*
Dryobates villosus harrisi,	*Oreortyx pictus plumiferus,*
Dryobates pubescens gairdneri,	*Xenopicus albolarvatus,*
Sphyrapicus varius ruber,	*Sphyrapicus thyroideus,*
Colaptes cafer saturatior,	*Nucifraga columbiana,*
Cyanocitta stelleri carbonacea,	*Certhia americana zelotes,*
(*Junco hyemalis oreganus,*)	*Junco hyemalis thurberi,*
(*Melospiza cinerea morphna,*)	*Melospiza cinerea merrilli,*
Parus rufescens rufescens.	*Parus gambeli.*

In the case of species represented in both areas but by distinct subspecies, sometimes it is the humid form that is present and sometimes the arid form (in a few cases there are intermediates). For instance, we find the typical coast form of *Cyanocitta,* but the typical arid race of *Oreortyx.* And in the case of distinct species, as a result of eastward and westward invasion respectively, the ranges of the separate representatives here overlap; for example, *Parus rufescens* and *Parus gambeli.* We find that as a rule two faunæ (of the same zone) are occupied each by a different subspecies of the same species, or a different species of the same genus; and that a single genus is seldom represented in one fauna by more than one species. (If it is, then it seems to have come through the invasion of one of the congeneric forms from an adjacent fauna, as with the two chickadees just mentioned.) This seems to me a strong argument in favor of the theory that isolation (either by long distance or intervention of barriers) has been an absolutely essential condition to the differentiation of species. A fauna is a certain assemblage of animals occupying a given uniform area; but the proportionate composition in both species and individuals is constantly changing, as influenced by neighboring faunæ, as well as endemic factors.